

IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended): A mobile communication system comprising:

a plurality of access routers;

a plurality of relay routers, at least one of the plurality of relay routers multicasting the data being transmitted from a correspondent terminal to a mobile terminal, and one of the at least one of the plurality of relay routers being present on each of the one or more paths for delivery of data from the correspondent terminal to the mobile terminal via one or more of the plurality of access routers used in a multipath handover state by the mobile terminal;

a server apparatus, the server apparatus dynamically switching which of the at least one of the plurality of relay routers is the one of the at least one of the plurality of relay routers that multicasts the data being transmitted from the correspondent terminal to the mobile terminal, based on the movement of the mobile terminal or the correspondent terminal changing which of the plurality of relay routers is present on each of the one or more paths from the correspondent terminal to the mobile terminal;

~~acquiring means for acquiring~~ a path information acquisition part configured to acquire, from each of the plurality of access routers, path information between a first relay router connected to the correspondent terminal as a start point and each of the plurality of access routers used in the multipath handover state by the mobile terminal as an end point;

~~selecting means for selecting~~ a selector configured to select the one of the at least one of the plurality of relay routers to multicast the data transmitted from the correspondent terminal to the mobile terminal, the selector ~~selecting means~~ being configured to:

make sequential comparisons of path information acquired by the path information acquisition part ~~acquiring means~~, hop by hop from the start point;

when, with a given hop as a target for the comparisons, a same relay router is passed in all the paths, perform comparisons about a next hop;

select as the one of the at least one of the plurality of relay routers to multicast the data transmitted from the correspondent terminal to the mobile terminal, a last relay router encountered in each of the one or more paths from the start point to the end point; and

~~instructing means for instructing~~ an instructing part configured to instruct the one of the at least one of the plurality of relay routers selected by the selector ~~selecting means~~, to multicast the data.

2. (Canceled).

3. (Previously Presented): The mobile communication system according to Claim 1, wherein the first relay router connected to the correspondent terminal transmits path information to each of the access routers used in the multipath handover state by the mobile terminal, and

wherein each path information is routed through a shortest path from said router as the start point to each of the access routers as the end point, every router passed by each path information additionally records identification information of said respective router in each path information, and each of the access routers refers to the path information received, so as to acquire relay routers on the shortest path from the start point to the end point, and a passing order thereof on the shortest path.

4. (Canceled).

5. (Currently Amended): The mobile communication system according to Claim 1, wherein the instructing part ~~instructing means~~ of the server apparatus is further configured to:

instruct at least one other router selected as the at least one of the plurality of relay routers newly selected by the selector ~~selecting means~~, to start multicasting the data; and

instruct at least one router previously selected as the at least one of the plurality of relay routers to multicast the data, in conjunction with the selection of the at least one other router, to cancel multicast of the data.

6. (Previously Presented): The mobile communication system according to Claim 1, wherein at an opportunity of a change in the access routers used in the multipath handover state by the mobile terminal, the server apparatus sequentially executes the acquiring process, the selecting process, and the instructing process.

7. (Previously Presented): The mobile communication system according to Claim 3, wherein one of the access routers used in the multipath handover state by the mobile terminal sends a path information request to the correspondent terminal under communication with the mobile terminal, and

wherein the first relay router connected to the correspondent terminal terminates the path information request and at this opportunity, said first relay router sends path information to each of the access routers used in the multipath handover state by the mobile terminal.

8. (Previously Presented): The mobile communication system according to Claim 7, wherein each access router receiving the path information additionally records identification information of the access router itself in the path information and sends the path information to the server apparatus.

9. (Currently Amended): The mobile communication system according to Claim 5, wherein the at least one other router, newly selected by the selector ~~selecting means~~ as the at least one of the plurality of relay routers to multicast the data, receives a multicast start request from the server apparatus, retains information included in the multicast start request, and multicasts data addressed to the mobile terminal, and

wherein the at least one router previously selected as the at least one of the plurality of relay routers to multicast the data, in conjunction with the selection of the at least one other router as the newly selected at least one of the plurality of relay routers to multicast the data, receives a multicast stop request from the server apparatus and stops multicasting the data.

10. (Currently Amended): The mobile communication system according to Claim 9, wherein, when receiving the data addressed to the mobile terminal, the router newly selected by the selector ~~selecting means~~ makes copies of the data by the number of routers as multicast destinations and transmits the data copies to the respective multicast destinations.

11. (Original): The mobile communication system according to Claim 7, wherein said path information request contains identification information of a sender and a recipient of the path information request and also contains identification information of the mobile terminal and identification information of the access routers to be designated as destinations of the path information.

12. (Original): The mobile communication system according to Claim 7, wherein the path information contains identification information of a sender and a recipient of the path information and also contains identification information of the mobile terminal, identification

information of the correspondent terminal, and identification information of the router as a start point of a path indicated by the path information.

13. (Original): The mobile communication system according to Claim 9, wherein the multicast start request contains identification information of a sender and a recipient of the multicast start request and also contains identification information of the mobile terminal and identification information of routers as multicast destinations, and

wherein the multicast stop request contains identification information of a sender and a recipient of the multicast stop request and also contains identification information of the mobile terminal.

14. (Currently Amended): A server apparatus connected to a plurality of relay routers and to a plurality of access routers, the server apparatus being configured to instruct at least one of the plurality of relay routers to multicast the data, one of the at least one of the plurality of relay routers existing on each of one or more paths for delivery of data from a correspondent terminal to a mobile terminal via each of one or more of the plurality of access routers used in a multipath handover state by the mobile terminal, said server apparatus comprising:

~~acquiring means for acquiring a path information acquisition part configured to~~  
acquire, from each access router, path information between a first relay router connected to the correspondent terminal as a start point and each of the access routers used in the multipath handover state by the mobile terminal as an end point, in conjunction with movement of the mobile terminal or the correspondent terminal;

~~selecting means for selecting~~ a selector configured to select the one of the at least one of the plurality of relay routers to multicast the data transmitted from the correspondent terminal to the mobile terminal, the ~~selecting means~~ selector being configured to:

make sequential comparisons of path information acquired by the path information acquisition part ~~acquiring means~~, hop by hop from the start point;

when, with a given hop as a target for the comparisons, a same relay router is passed in all the paths, perform comparisons about a next hop;

select as the one of the at least one of the plurality of relay routers to multicast the data transmitted from the correspondent terminal to the mobile terminal, a last relay router encountered in each of the one or more paths from the start point to the end point; and

~~instructing means for instructing~~ an instructing part configured to instruct the one of the at least one of the plurality of relay routers, selected by the selector ~~selecting means~~, to multicast the data transmitted from the correspondent terminal to the mobile terminal.

15. (Previously Presented): A data transmission method in a mobile communication system comprising a plurality of relay routers, a plurality of access routers, and a server apparatus, said data transmission method comprising:

at least one of the plurality of relay routers multicasting the data transmitted from a correspondent terminal to a mobile terminal, one of the at least one of the plurality of relay routers existing on each of one or more paths for delivery of data from the correspondent terminal to the mobile terminal via one or more access routers used in a multipath handover state by the mobile terminal;

the server apparatus dynamically switching one or more of the at least one of the plurality of relay routers that multicasts the data being transmitted from the correspondent

terminal to the mobile terminal, based on the movement of the mobile terminal or the correspondent terminal; and

the server apparatus selecting the one of the at least one of the plurality of relay routers, the selecting including

making sequential comparisons of path information acquired , hop by hop, from a first relay router connected to the correspondent terminal as a start point to each of the access routers as an end point;

when, with a given hop as a target for the comparisons, a same relay router is passed in all the paths, performing comparisons about a next hop;

selecting as the one of the at least one of the plurality of relay routers to multicast the data transmitted from the correspondent terminal to the mobile terminal, a last relay router encountered in each of the one or more paths from the start point to the end point.

16. (Currently Amended): The mobile communication system according to Claim 1, wherein the server apparatus comprises:

~~acquiring means for acquiring~~ a path information acquisition part configured to acquire path information between the first relay router connected to the correspondent terminal and each of the access routers used in the multipath handover state by the mobile terminal, based on information in a link state database of Open Shortest Path First (OSPF), which was acquired from the router or the access router;

~~selecting means for selecting~~ a selector configured to select the at least one of the plurality of relay routers to multicast the data, based on a result of a comparison of the path information acquired by the path information acquisition part ~~acquiring means~~; and

~~instructing means for instructing~~ an instructing part configured to instruct the at least one of the plurality of relay routers, selected by the selector ~~selecting means~~, to multicast the data.

17. (Currently Amended): The mobile communication system according to Claim 1, wherein the path information acquisition part ~~acquiring means~~ of the server apparatus is further configured to:

acquire from at least one router belonging to each management area of OSPF used by a network, information in a link state database made in the management area to which said router belongs;

change all cost values between routers or access routers, recorded in the link state database, to an identical numeral larger than 0 according to need;

receive from the first relay router connected to the correspondent terminal, a start point search response indicating that said router is a start point of path information;

activate a shortest path algorithm with the router indicated by the start point search response, as a start point, and thereby generate a shortest hop tree with said router at a start point; and

refer to the shortest hop tree to acquire as path information, routers on a shortest path from the router as a start point to each access router as an end point, and a passing order thereof.

18. (Previously Presented): The mobile communication system according to Claim 17, wherein one of the access routers used in the multipath handover state by the mobile terminal sends a start point search request to the correspondent terminal as a correspondent under communication with the mobile terminal, and

wherein the first relay router connected to the correspondent terminal terminates the start point search request thereat and at this opportunity, said router sends the start point search response in which identification information of the router is recorded, to the server apparatus.

19. (Original): The mobile communication system according to Claim 18, wherein the start point search request contains identification information of a sender and a recipient of the start point search request and also contains identification information of the mobile terminal.

20. (Original): The mobile communication system according to Claim 17, wherein the start point search response contains identification information of a sender and a recipient of the start point search response and also contains identification information of the mobile terminal, identification information of the correspondent terminal, and identification information of a router as a start point obtained by a search.

21. (Currently Amended): A server apparatus connected to a plurality of relay routers and to a plurality of access routers, the server apparatus being configured to instruct at least one of the plurality of relay routers to multicast the data, one of the at least one of the plurality of relay routers existing on each of one or more paths for delivery of data from a correspondent terminal to a mobile terminal via one or more of the plurality of access routers used in a multipath handover state by the mobile terminal, said server apparatus comprising:

~~acquiring means for acquiring~~ a path information acquisition part configured to acquire path information between a first relay router connected to the correspondent terminal as a start point and each of the access routers used in the multipath handover state by the

mobile terminal as an end point, based on information in a link state database of OSPF, which was acquired from the router or the access router, in conjunction with movement of the mobile terminal or the correspondent terminal;

~~selecting means for selecting~~ a selector configured to select the at least one of the plurality of relay routers to multicast the data transmitted from the correspondent terminal to the mobile terminal, the selector ~~selecting means~~ being configured to:

make sequential comparisons of path information acquired by the path  
information acquisition part ~~acquiring means~~, hop by hop from the start point;

when, with a given hop as a target for the comparisons, a same relay router is passed in all the paths, perform comparisons about a next hop;

select as the one of the at least one of the plurality of relay routers to multicast the data transmitted from the correspondent terminal to the mobile terminal, a last relay router encountered in each of the one or more paths from the start point to the end point; and

~~instructing means for instructing~~ an instructing part configured to instruct the at least one of the plurality of relay routers, selected by the selector ~~selecting means~~, to multicast the data transmitted from the correspondent terminal to the mobile terminal.